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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/782,673

02/19/2004

Jason Raymond Baumgartner

AUS920030638US1

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03/08/2006

IBM CORP. (AVE)

C/O LAW OFFICE OF ANTHONY ENGLAND

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EXAMINER

KIK, PHALLAKA

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,673

Applicant(s)

BAUMGARTNER ET AL.

Examiner

Phallaka Kik

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action responds to the Application filed on 2/19/2004. Claims 1-20 are pending.

Ex Parte Quayle

2. This application is in condition for allowance except for the following formal matters:

The objection to the Oath and Declaration as given in section paragraph 3 below.

The objections of claims 1-20 due to minor informalities as given in section paragraph 4 below.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration, wherein the residence's address of Robert Lowell Kanzelman has been altered without being initialed and dated. See 37 CFR 1.52(c).

4. Applicant should note that for this particular kind of defect, an Application Data Sheet in compliance with 37 CFR 1.76 may be used to correct this defect (see 37 CFR 1.76(c)(1), (d)).

Claim Objections

5. **Claims 1-20** are objected to because of the following informalities:

As per **claim 1**, "the operation" (line 3) should be --an operation--; "the value" (line 7) should be --a value-- and "the functional" (line 9) should be --a functional-- for proper antecedent basis.

As per **claim 4**, "the new" (line 2) should be --a new-- and "the old" (line 2) should be --an old-- for proper antecedent basis.

As per **claim 5**, "the exclusive" (line 3) should be --an exclusive-- for proper antecedent basis.

As per **claims 6-7**, "further" (line 2) should be deleted; and --further-- should be inserted before "includes" (line 3) to clearly define the further limitation of the claim.

As per **claim 2-7**, the claims are also objected to for incorporating the above errors into the claims by claim dependency.

As per **claim 8**, --comprising a computer readable medium-- should be inserted after "product" (line 1) and "the program product comprising a computer readable medium," (lines 1-2) should be deleted for greater clarity;

"the design" (line 1) should be --a design--; "the operation" (line 4) should be --an operation--; "the value" (line 7) should be --a value--; "the functional" (line 9) should be --a functional-- for proper antecedent basis.

As per **claim 10**, --further-- should be inserted before "includes" (line 2) to clearly define the further limitations of the claim.

As per **claim 12**, --further-- should be inserted before "includes" (line 4) to clearly define the further limitations of the claim.

As per **claim 13**, "further" (line 2) should be deleted and --further-- should be inserted before "includes" (line 4) to clearly define the further limitations of the claim.

As per **claim 14**, --further-- should be inserted before "includes" (line 3) to clearly define the further limitations of the claim; "the exclusive" (line 3) should be --an exclusive-- for proper antecedent basis.

As per **claims 9-14**, the claims are also objected to for incorporating the above errors into the respective claims by claim dependency.

As per **claim 15**, "design" (line 11) should be --designs-- since it refers to the first and second designs; "does not" (line 13) should be --was not verified-- for greater clarification; "attempting to determine" (line 14) should be --determining-- to clearly identify what is being claimed.

As per **claim 18**, "the behavior" (line 2) should be --a behavior-- for proper antecedent basis.

As per **claims 11-20**, the claims are also objected to for incorporating the above errors into the respective claims by claim dependency.

Appropriate correction is required.

Allowable Subject Matter

6. **Claims 1-20** would be allowable if rewritten or amended to overcome the informalities set forth in this Office action.

7. The following is a statement of reasons for the indication of allowable subject matter:

As per **claims 1-14**, the independent claims 1 and 8, from which the respective claims depend, recite the design verification system/computer program product for verifying the design of an integrated circuit, comprising the inventive features comprising the correspondence engine/engine code means and means/code means for using the propagated value of N to reduce resources expended during subsequent analysis of the second design of the integrated circuit, responsive to the correspondence engine/code means, as claimed, which the prior arts made of record fail to teach or suggest. In particular, although **Baumgartner et al.** (US Patent No. 6,993,734) teaches the method/system for design verification involving the use of propagated N value time steps as part of the first and second verification engines to reduce the resources expended during subsequent analysis of the integrated circuit, **Baumgartner et al.** fails to teach or suggest using the method/system to adapt this method/system to perform verification of the first and second designs of the integrated circuit involving the inventive features as claimed. Other prior arts made of record teach various methods/systems for circuit verification, including incremental circuit verification and verification of more than one design of the integrated circuit performed in N time steps or iterations (see especially **Prasad et al.**, U.S. Patent Application Publication No. 2004/0237057, especially paragraphs [0017], [0028]; **Maruyama et al.**, U.S. Patent

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Application Publication No. 2004/0098683, especially abstract and paragraph [0035];

Jain, U.S. Patent Application Publication No. 2004/0015799, especially abstract and paragraphs [0017], [0165]; **Lohse et al.**, U.S. Patent No. 6,581,026, especially col. 3, lines 27-45; **Huang et al.**, U.S. 6,321,363, especially col. 3, lines 1-40; Fig. 5A, 5B).

However, none of the prior arts made of record, alone or in combination, teach or suggest the inventive steps as claimed. Accordingly, the claimed invention is novel and un-obvious over the prior arts made of record.

As per **claims 15-20**, the independent claim 15, from which the respective claims depend, recites the design verification system comprising the inventive means for creating the composite of the first and second designs of an integrated circuit and means for determining if the correspondence node is capable of being asserted, wherein the correspondence node is derived from the composite design created, having the particular characteristics as claimed, which the prior arts made of record fail to teach or suggest. In particular, the prior arts made of record teach various methods/systems for performing circuit design verification involving the use of merging or composite of circuit designs (see especially **Franco et al.**, U.S. Patent Application Publication No. 2005/0171747, especially paragraphs [0031]-[0034], [0096]; **Ramsey**, U.S. Patent Application Publication No. 2002/0065640, especially paragraphs [0031]-[0038]; **Narain et al.**, U.S. Patent No. 6,651,228, especially col. 13, line 64 to col. 14, line 32; **Matsunaga et al.**, U.S. Patent No. 5,461,574, col. 3, lines 21-67 and col. 8, lines 25-43; see also prior arts recited in the reasons for indicating allowable subject matter of claims 1-14 above). However, none of the prior arts made of record, alone or in combination,

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teaches or suggests the inventive means as claimed. Accordingly, the claimed invention is novel and un-obvious over the prior arts made of record.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Therefore, Applicant is requested herein to consider them carefully in response to this Office Action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phallaka Kik whose telephone number is 571-272-1895. The examiner can normally be reached on Monday-Thursday, 6:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner for Patents

P. O. Box 1450

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Alexandria, VA 22313-1450

or faxed to:

571-273-8300

A handwritten signature in black ink, appearing to read "Phallaka Kik", written in a cursive style.

Phallaka Kik
U.S. Patent Examiner
March 4, 2006